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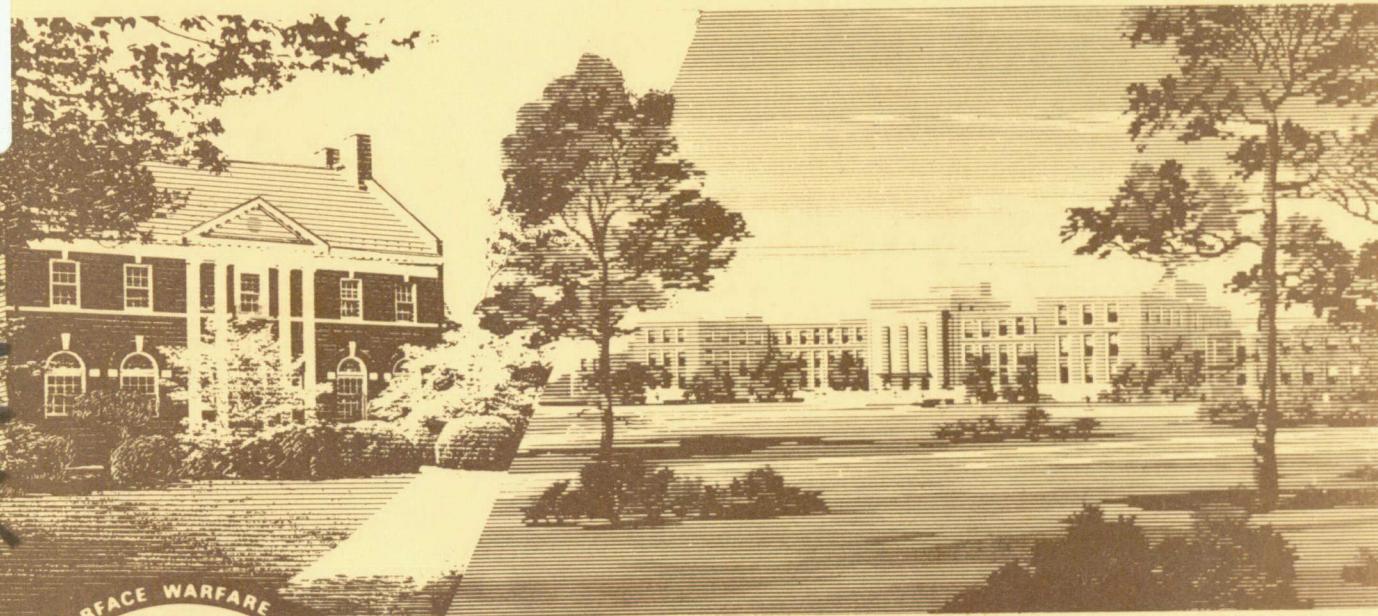
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A STRATEGIC PERSPECTIVE ON THE FUTURE OF THE NAVAL SURFACE WARFARE CENTER



Today's Commitments, Tomorrow's Challenges

NAVAL SURFACE WARFARE CENTER

Dahlgren, Virginia 22448-5000 • Silver Spring, Maryland 20903-5000

Report Documentation Page

*Form Approved
OMB No. 0704-0188*

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1. REPORT DATE MAY 1988	2. REPORT TYPE	3. DATES COVERED 00-00-1988 to 00-00-1988		
4. TITLE AND SUBTITLE A Strategic Perspective on the Future of the Naval Surface Warfare Center			5a. CONTRACT NUMBER	
			5b. GRANT NUMBER	
			5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)			5d. PROJECT NUMBER	
			5e. TASK NUMBER	
			5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Surface Warfare Center,Dahlgren,VA,22448-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)	
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited				
13. SUPPLEMENTARY NOTES				
14. ABSTRACT				
15. SUBJECT TERMS				
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 21
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified		
19a. NAME OF RESPONSIBLE PERSON				

Approved for public release; distribution unlimited.

MP 88-129

**A STRATEGIC PERSPECTIVE
ON THE FUTURE OF THE
NAVAL SURFACE WARFARE CENTER**

Today's Commitments, Tomorrow's Challenges

**MP 88-129
May 1988**



DEPARTMENT OF THE NAVY

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MP 88-129

May 1988

This Center has a continuing responsibility to increase its value to the Navy--and to do that, we need to continually assess where we are and where we're heading. The quality and effectiveness of our work depends largely on our capability to understand and anticipate the Navy's needs, and to plan to meet those needs. So for some time we have been working to improve our internal planning.

The planning practices that have been adopted at NSWC--and that are still evolving--have been based on the principle that planning is an inherent, necessary management function and responsibility. Moreover, even though there are some procedural aspects associated with our planning, we should be far more concerned with the purpose it serves than with detailed procedures; with the actions that will result from our plans than with the planning documents.

No written word can create the environment necessary to sustain an effective research and development organization. That depends largely on the motivation and talent of dedicated people working toward common purposes. The enclosed paper has been prepared to help foster a better understanding of these purposes. It attempts to capture the spirit and underlying values of our organization and explain its role as a responsible and responsive part of the United States Navy. It also provides an historical perspective on the Center's "corporate" planning efforts to date. Most importantly, it sets forth Center leadership's best judgment as to where we should be heading in the future, and of the general actions that should be taken to move in the right directions.

All of us have a stake in the future of our organization, and all of us have a role to play in helping to make this Center's contributions to the Navy as valuable as possible. While this paper is intended to be useful and informative to every employee, it is particularly addressed to managers at the Division and Branch levels to help them better understand their contributions in relationship to the Center as a whole. They have a key responsibility to interpret the planning guidance they have received and, in turn, to guide the operations and activities of their own organizations in support of the Center's overall goals.

LEMMUEL L. HILL

Technical Director

CARL A. ANDERSON

Commander

CONTENTS

COVER MEMO

INTRODUCTION	1
PURPOSE AND OPERATING PHILOSOPHY	1
NSWC APPROACH TO PLANNING	2
THE "NSWC OF THE FUTURE"	5
The Future Character of the Center	5
The Future Posture of the Center	7
FUTURE DIRECTIONS	8
Sector Guidance	8
Department Guidance	9
CENTER GOALS, ISSUES, AND OBJECTIVES	11
Center Goals	11
Management Issues	12
Near Term NSWC Objectives	12
Strategic Management	12
Internal Administration	12
External Operations	13
Resource Boards	13
THE ROLE OF THE INDIVIDUAL EMPLOYEE	13
A RETROSPECTIVE LOOK AT THE FUTURE	14
DISTRIBUTION	

INTRODUCTION

The Naval Surface Warfare Center is at a crucial point in its history. We are striving to chart a course into the future that will build on our past strengths, develop new capabilities, assure our continued contribution to the Navy--and to do all of this in a time of uncertainty about what the future holds. The complex environment in which we operate has changed--and will continue to change, in ways that cannot be accurately predicted.

But there is one aspect of our future that is both certain and timeless. We, along with the rest of the in-house Navy research and development community, will continue to have a grave responsibility: to serve as the "technical conscience" of the Navy in acquiring the warfighting capabilities needed to protect our Nation's security. This is our continuing and overriding purpose. At the same time, we have near-term obligations and commitments to those we serve most directly--the sponsors of our current programs--and while these often take priority, we must never let them take precedence over our fundamental purpose. This is the most significant challenge facing management at all levels at the Center--to recognize and understand the difference between what is good for the Navy in the short run and what is best for the Navy in the long run, and to act in accordance with the long-term view.

PURPOSE AND OPERATING PHILOSOPHY

Like all shore installations in the Navy we have a mission to perform, assigned by the

Chief of Naval Operations: to be the principal Navy RDT&E Center for surface ship weapons systems, ordnance, mines, and strategic systems support. That mission statement tells us what we must do--but it doesn't really explain why we exist, nor does it say anything about how we operate.

The fundamental purpose of the Naval Surface Warfare Center--the basic reason for our existence--is to enable the Navy to make well-informed technical judgments in obtaining the material resources needed to carry out National objectives, **and** to help determine what these needs are. In other words, we exist to help the Navy get what it needs, not just what it wants--and to be able and willing to explain the difference.

This is by no means merely a passive, advisory role. It requires that we be very actively and directly engaged in advancing the state of the Navy's technical know-how, across the entire RDT&E spectrum.

Our principal value lies in our being an integral part of the Naval family, and therefore motivated to serve the best interests of the Naval Service and the Nation--as we understand them. This understanding of the Navy's interests and needs is strengthened by our continued substantial contribution to technology, design, development, and acquisition, through which we build and replenish our knowledge and experience base. We play a critical role in the process by which the Nation arms itself; this demands that our technical judgments be sound, supported by the best available scientific and engineering capabilities, and that we have the professional

integrity to challenge the positions of others when such challenge is warranted by the results of our work--even if that means taking unpopular positions.

The Center's overall philosophy of operation has three cornerstones: our **product**, our **people**, and our **process** of managing the organization.

First and foremost, we are dedicated to nothing less than excellence in the quality of the product of our work--at all levels and in all parts of our organization. We serve as a guardian of the public interest in the vital area of national security, and must provide the Navy a dedicated scientific and technical competence of the highest caliber--which in turn must be backed up by equally high-quality support services.

The excellence we seek--which the Navy and the Nation have a right to expect--is absolutely dependent on the capabilities, talents, and skills of our people, together with their dedication and professionalism. Moreover, "professionalism" at NSWC should be demonstrated by every individual--whether in a scientific, engineering, administrative, clerical, technical support, or blue collar occupation.

Finally, we both practice and preach a style of management that recognizes the fundamental worth and dignity of the individual employee, and is based in the trust that all employees want to strive toward their highest potential. We offer extensive opportunities for personal growth and development, we encourage risk-taking and the delegation of authority and responsibility

to the maximum degree practicable, we hold employees accountable for results, and we provide recognition and rewards commensurate with performance.

NSWC APPROACH TO PLANNING

The introduction of a formalized planning process at NSWC almost six years ago was in response to a recognition by senior management that the Center seemed to be moving in too many different directions.

Some of the principal concerns at the time were that we were being driven in these directions by the relatively narrow, short-term interests of individual sponsors; that we were making long-term program commitments without a clear understanding of the future resources needed to meet these commitments; that we were becoming involved in programs too late in the development cycle to have a significant impact on their outcome; and that, in general, we were too reactive in our planning and decision making. The consensus was that it is imperative that we exercise a much stronger degree of control over our own future if we are to fulfill our fundamental responsibilities; in short, that we must be more of a leader than a follower in carrying out our business.

At the outset, we adapted a number of business-like strategic planning techniques and procedures to the "business" of the Naval Surface Warfare Center--calling for a thorough analysis of the Center's products, customers, and markets, along with an in-depth organizational self-appraisal of the

Center's performance. The review spanned all organizational units, but without regard to existing organizational responsibilities; in order to take the broadest possible strategic view of the Center, current organizational structure was not considered a constraining factor. These early planning efforts viewed the Center not from the traditional line management (Department/Division/Branch) perspective, but as the composite of major "Sectors"--each of which included a number of work- and customer-related "Strategic Business Units" (SBUs) and "Strategic Support Units" (SSUs).

This initial approach to Center-wide planning acknowledged that it would be desirable, as a first-time effort, to be all-inclusive in examining and assessing the work of the Center; i.e., to review all projects at a relatively fine level of detail. At the time, this was necessary for its educational value if for no other reason. Given our current level of experience, we now recognize that Center-wide planning is not a single all-encompassing, top-to-bottom activity, but the aggregate of a number of activities.

Planning at NSWC is based on four premises: (1) the Center's effectiveness and value to the Navy can be enhanced by planning; (2) planning should be done from the top down, execution from the bottom up; (3) it is neither necessary nor desirable to involve all levels of the Center in all levels of planning; (4) planning is a personal responsibility of every line manager; it is not a staff function.

Above all, "planning" is not deciding or

predicting what is going to happen in the future. Rather, it involves setting appropriate goals, communicating those goals, and creating the environment that will both encourage and permit people in the organization to work toward them.

In essence, planning is intended to help all managers achieve one of their central purposes: to build a more effective "whole" from the "parts." And just as there are different levels of management, with different responsibilities and perspectives, so too are there different levels of planning: "strategic," "tactical," and "operational." They differ from one another in terms of their scope, their time horizons, their degree of specificity, and the participants involved.

"Strategic" responsibilities are ultimately those of the Center's top management officials: the Commander and the Technical Director. Strategic planning concerns itself with the fundamental character and quality of the Center as a whole, over the long term. It is more concerned with what should be achieved, rather than how.

"Tactical" responsibilities are those of senior management: Department Heads. Tactical planning should both be responsive to the Center's strategic (long-term) goals and serve to establish Department operational (mid-term) goals, as well as address the allocation of resources needed to accomplish these goals.

"Operational" responsibilities are those of middle management: Division Heads and Branch Heads. Operational planning should both be responsive to the tactical goals of the

Department and serve to establish near-term objectives, as well as address the application of resources to achieve these objectives.

Although managers at these various levels bear the ultimate responsibility for their planning efforts, planning is not an exercise conducted in isolation from those who will be charged with putting the plans into action. Planning is an iterative process; all managers should seek and utilize contributions to the process from throughout their respective organizations. A key aspect of the planning process is that higher level goals constitute guidance, and this guidance must be interpreted and adapted by each subordinate management level into goals and actions appropriate to that level. Managers, supervisors, and employees are not expected to interpret and respond directly to Center-level policy. Rather, they should be provided the leadership within their respective areas to enable them to focus their energies on meaningful and understandable responsibilities. Responsibility and accountability for developing this guidance (i.e., for helping subordinate management levels translate what we want to be into what we want to do) and for reviewing and reporting on progress should be explicitly assigned, at each management level.

Strategic planning does not "end" with the identification of strategic goals and the agreement to pursue them; it must be "implemented" by the adoption of tactical plans which are consistent with and supportive of strategic goals. Similarly, tactical plans must themselves be implemented

by subsequent development of operational plans. In this way broad, top-level policy guidance becomes progressively translated and focused into identifiable actions to be taken at the working levels in the organization; i.e., what we want to be is translated into what we need to do.

During the past six years, in response to the concerns discussed earlier, a great deal of effort has been devoted to planning at many levels and by many people throughout the organization. It would be tempting to claim that this effort has been neat and orderly, that it has always progressed logically and rigorously from the general to the specific and that, as a result, we now have identified with certainty all of the actions and activities to be undertaken in the future. Nothing could be further from the truth; in fact, if we were ever to delude ourselves into thinking that such a level of perfection had been reached--or even that it was reachable--it would be a clear signal that our planning was probably seriously flawed. The process by which we are seeking to improve the quality and effectiveness of Center planning has, at times, been sporadic, chaotic, and contentious; has involved false starts and back-tracking; and has by no means eliminated all doubt about what will happen in the future.

Nonetheless, our planning effort to date has been extremely worthwhile. It has substantially enhanced our own understanding of--and agreement on--the Center's long-term goals and directions, and has helped us begin to move in those directions. In particular, it has enabled us to articulate the Center's

intended future posture, the qualities we are seeking to demonstrate, and the desired character of the organization. These are discussed in the following section.

THE "NSWC OF THE FUTURE"

How will the NSWC of tomorrow be different from today? Even with an unchanging fundamental purpose, the one thing we can say with certainty about the Center in the future is that it will be different. History and experience clearly show it is unrealistic to presume that today's programs, today's organizational structure, or even today's mission will continue indefinitely into the future. But we also know that we must build on today's strengths to create the Center of tomorrow.

The Future Character of the Center

One of these strengths--a very major strength--is the broad range of talents we have developed in a diverse set of technical disciplines, which has enabled us to respond effectively to a wide variety of Navy problems and opportunities. But if allowed to grow unchecked, such diversity can also dilute our effectiveness, and we must not allow this to happen.

We want to hold the Center at approximately its current employment level, and we want to limit the extent to which we contract out our technical responsibilities. These two bounds will help shape the Center of the future.

We see a Center that both maintains the strength of our diversity and focuses that

strength more cohesively. This focus should be particularly on the needs of The Surface Navy.

In combat, our fighting forces achieve their ultimate purpose through the ability to deliver ordnance on target. In our business, we achieve our ultimate purpose through our ability to deliver "knowledge on target"--to provide our technical skills and capabilities where they can best respond to the Navy's needs. This means that we must both understand what those needs are and be able to recognize emerging technological opportunities. It is up to us to seize the initiative in exploiting these opportunities, and we must be able to convince higher echelons in the Navy, when necessary, that our approaches are sound.

We will continue to develop hardware systems, software systems, and components in our assigned mission and leadership areas. We will select and pursue technologies that we believe have high potential war-fighting benefits. We will work toward a better integration of our efforts in technology, concept formulation, and system development. While we can be expected to retain our mission as the Navy's principal RDT&E Center for surface weapons systems, ordnance, mines, and strategic systems, we will also become leaders in shaping the integrated war-fighting capabilities of the future Surface Navy.

NSWC's work balance in the future will, therefore, be more heavily oriented toward systems and components that directly support surface warfare--the prosecution of anti-air,

anti-submarine, anti-surface, strike, and electronic warfare from a surface ship perspective--and that contribute to an integrated Battle Force made up of surface, air, and subsurface elements.

We see a continuation of a healthy balance between systems work and components work, with a modest movement toward complex systems from components. We believe that we cannot continue successfully in the systems arena without maintaining a solid foundation in the component arena. We also expect that our experience and accomplishments in complex surface ship weapons systems and combat systems will serve us well in achieving a strong role in system engineering the Battle Force.

This shift in Center work balance will necessarily come at the expense of the other elements of our mission, but we do not envision our work balance shift to be of such a magnitude as to endanger the integrity of the quality of our work in the other elements of our mission. Hence, we see a continued technically strong, although possibly reduced, base in the mines and strategic systems elements of our mission. Furthermore, we envision sustaining most of the technological disciplines that span combinations of surface, air, submarine, and amphibious warfare for which we have the Navy's most capable people and facilities, most notably the ordnance element of our mission.

We envision a greater emphasis on our role as the Navy's surface warfare Center, recognized throughout the Navy for our contributions to all warfare areas where

surface ships have a role. We will be the technical experts in understanding the war-fighting roles and current capabilities of surface ships, proponents of needed capability against future threats, and leaders in the acquisition of selected major systems. We will understand the integration of all surface ship systems and how these systems are used, and maintain connectivity to the Fleet for feedback on needed improvements.

Our primary current responsibility is to meet our commitments to our sponsors. This does not necessarily mean that we will continue to be associated with today's sponsors indefinitely. Often, we will best serve the long-term interests of the Navy by promoting the transition of mature programs from NSWC to other activities better suited to carry out the latter phases of life cycle support responsibilities. Where that capability does not already exist elsewhere, we have a duty to help those other activities build it and to assist in transferring the work. Such transfers are a measure of our success and enable us to maintain a proper balance across the full spectrum of our responsibilities.

We are committed to a more deliberate and explicit application of stated Navy needs and priorities to our own program planning and to the assessment of the relative worth of our programs in meeting the Navy's projected needs. At the same time, we will work to assure that opportunities that we have recognized but that have not been incorporated into Navy plans and budgets are made known to senior Navy planners.

Just as the individual elements of a ship's

combat system must be integrated to operate effectively together, so too should our individual technical efforts be integrated across Departments and organizational units whenever those efforts have an impact on one another. We must build effective information links throughout the Center to keep managers, supervisors, and working level groups informed of one another's progress and use this information to strengthen the interoperability of the products that will ultimately be delivered to the Fleet.

Working within and supporting the Navy's Warfare Systems Architecture and Engineering concept for developing alternative approaches to meeting warfighting requirements, we will focus greater attention on the needs of surface combatants. In particular, we will address those areas where we can best contribute to the advancement and integration of the surface combatant's overall capabilities.

In pursuing these new directions, we will adopt the practice of assessing our own progress throughout the Center. At all levels, our plans must include meaningful goals. The development of goals that are measurable (not necessarily quantitative) is a challenge for each level of management. Equally challenging is the need to understand and demonstrate the relationships between goals at different organizational levels. We must meet both of these challenges.

We will continue to value and foster the close working relationships that exist between personnel at the Center and those in individual sponsoring offices. It is equally important

that our senior executives take an active and personal role in dealing directly with appropriate senior levels in the SysComs and in OpNav, and with their counterparts at the University Labs and the SysCom technical field activities.

We must continually recognize that our ability to contribute to the Navy rests largely on the current experience of our scientific and engineering workforce, which in turn is maintained through their direct, hands-on conduct of RDT&E. While there may be legitimate reasons for using our technical talents to direct or monitor the work of others rather than doing the work ourselves, we must resist the external and internal pressures to contract out technical responsibilities.

We will also invest in our own future by helping to train and develop tomorrow's leaders through varied work assignments, flexible and innovative personnel policies, encouragement of risk-taking, and the willingness to learn from our failures.

Finally, we will employ efficient business practices to manage the public resources entrusted to us, recognizing that while efficiency in an R&D organization is important it is not paramount. Effectiveness is.

The Future Posture of the Center

In looking ahead, we can describe the Center's desired future posture in general terms by the way we will distribute and apply the talents and abilities of our people. We anticipate that the overall size of the Center will remain at approximately 5,000 employees. At least 60% of these will be

working in direct support of our external customers and sponsors, and no more than 40% will provide internal support of our own operations. The primary emphasis--about half--of our direct work will be on surface ship warfighting capabilities (in anti-submarine warfare, anti-air warfare, anti-surface warfare, and electronic warfare) and on strategic systems. In each of these warfare areas we will have responsibility for at least one major program. The remainder of our direct work will be in other warfare areas; in our traditional fields of technical excellence, such as ordnance, underwater warheads, and materials; and in technical support. Our goal is to strike a balance between systems work and component work. In so doing, we can assure that the acquisition engineering workload demands of large systems do not ultimately prevent us from having sufficient component work to gain the knowledge necessary to influence the design of new or improved systems and to provide a training ground for engineers and scientists. We will also continue to seek a work balance across the Center of at least 20% technology base, 60% systems development, and no more than 20% in-service support. Of these three broad categories, technology base effort is the most critical to the long-term health of the Center and the Navy, and is not constrained to any particular organizational unit or funding category. Line managers in all technical departments are expected to ensure that the exploration and application of evolving technologies are focused and carried out as an integral part of major program work.

If we are to achieve this position for the Center, it is not enough merely to adapt or react to change--we must help create the changes which we see are necessary. We have the capacity--and the duty--to influence our own future.

This section has presented a number of the general outcomes and broad decisions resulting from the Center's strategic planning efforts. These were arrived at by the Commander and the Technical Director, working closely with the Department Heads, following lengthy and intensive examination of the Center's ongoing efforts, thorough consideration of options and alternatives, and a good deal of give and take among Center executives and managers. They should be considered more of a compass than a road map and are intended as a framework within which the Center's leaders, at all levels, should carry out their responsibilities.

FUTURE DIRECTIONS

Sector Guidance

To bring our intended character and posture more into focus, the future levels of in-house manpower that should be devoted to each of the Sectors relative to our current position have been established. These should be viewed as targets to be reached over a ten-year period and serve as a basis for identifying some of the steps that should be taken to reach these targets. A synopsis of each of these relative changes is presented below.

The Underwater Systems sector will increase by placing substantially more effort

into surface ship ASW fire control and combat systems programs, while at the same time reducing mines and Seal weapons work.

The Strategic Systems sector will remain at approximately its current level, depending on future SLBM system program decisions, and will be responsive to emerging needs in the Navy's use of space.

The Surface Launched Weapons Systems sector will decrease substantially by reducing its support of guns and Marine Corps effort, while building a surface missile systems role and increasing its work in directed energy weapons.

The Electromagnetic Combat sector will increase by expanding its efforts both in electronic warfare and in search, track, and identification systems, each with an emphasis on needed surface ship capabilities.

The Combat Systems sector will increase by placing greater emphasis on warfare systems architecture and engineering, modestly increasing its support of Tomahawk, and limiting growth of Aegis.

The Protection sector will remain at approximately its current level but will re-order its internal priorities by devoting more resources to system design impact, and fewer resources to the more routine aspects of testing and fixing existing systems.

The Technology sector will remain at approximately its current level, while placing more emphasis in the information sciences and in systems technology and reducing the effort devoted to propellants research.

The Engineering sector will decrease slightly by phasing out its cost control work

and by scoping its other efforts consistent with the internal engineering support needs of the Center.

On balance the support sectors (Personnel; Finance; Procurement; Plant; Computing and Information Systems; Command Support; and Center Staff) will remain at essentially today's overall level, with individual increases or decreases dependent on the resolution of a number of business management issues facing the Center. The indirect and G&A efforts of the technical departments will be held to today's levels.

These general, long-term statements of intended Sector posture are not, in themselves, meaningful near-term objectives that can be acted on by the line organization. The respective Departments are now in the process of identifying these objectives, as discussed below.

Department Guidance

In response to the results of the Center's strategic planning efforts, Department Heads have prepared tactical guidance for their respective Departments. The purposes of this guidance, which addresses a nominal three-year period, are to serve as a link between strategic goals (for the Center) and operational goals (for the individual organizational units within the Department), to call for the development of operational plans by managers and supervisors, and to provide an initial allocation of resources across the Department over the time period.

The following summary is intended to

convey the essential elements of this guidance, which has been provided in writing--at a greater level of detail, as appropriate to Departmental management--to the Division Heads and program managers in each Department.

The Engineering Department will divest its cost control work; will reduce its in-house efforts in design and manufacturing, and in technical information and audiovisual services, by contracting and/or divestiture of segments of this work as appropriate to the needs of the Center; and strengthen the underlying technical base in product assurance.

The Electronics Systems Department will increase its efforts both in electronic warfare and in search and track; divest or cut back mature programs; aggressively pursue new roles in the early phases of the development cycle; explore new approaches to meeting surface ship IFF needs; and increase the surface ship's overall warfighting capabilities through more effective electronic warfare/intelligence integration and multi-sensor correlation.

The Weapons Systems Department will maintain substantial responsibilities in surface missile systems through its direct involvement in associated sub-system, component, and technology development; divest its non-R&D support of gun weapon systems; take the lead in systems engineering for directed energy weapons; cut back in-service and acquisition management support for Marine Corps programs, while emphasizing tech base work; and reduce the Center's river range operations

in accordance with anticipated future workload requirements.

The Protection Systems Department will expand its role in the design and development phases of new systems; devote fewer resources to fixing problems with equipments that have already entered service; reduce its efforts in the more routine aspects of electromagnetic effects testing; and strengthen its chemical/biological defense capabilities.

The Strategic Systems Department will continue development and risk reduction effort for Trident II; maintain the NSWC initiative to provide technical support for the Navy's role in space; develop multiwarfare analysis techniques and engineering models for the warfare systems architecture and engineering community; continue the hypersonic RDT&E effort consistent with national needs and tunnel resources; and strengthen the Center's scientific computer, business computer, and office automation capabilities.

The Combat Systems Department will limit growth of the Aegis program by transitioning in-service engineering responsibilities; substantially increase its involvement in warfare systems architecture and engineering across all of the Center's warfare areas; lead the Center's efforts to fully develop and utilize the surface warfare capabilities of the Wallops Island facility; and establish a Center-wide software technology program.

The Research and Technology Department will reduce its work on propellants and withdraw its operations from Indian Head; strive to assure that it is addressing the full

range of emerging and future technologies relative to the Center's mission areas; resolve the question of meeting the Navy's needs for underwater explosive testing; and, in conjunction with other technical departments, strengthen its efforts in information sciences and system technologies.

The Underwater Systems Department will rapidly take on major responsibilities in surface ship ASW fire control and combat system development; reduce its efforts both in mines and in Seal weapons by contracting technical support responsibilities and transitioning in-service engineering; and maintain its current responsibilities for underwater warhead development.

For each of their functional areas, the support Department Heads have also provided guidance intended to assure that their operations support the Center's goals.

Line and program managers in each of the Departments are now developing operational plans for their respective organizational components. These plans will indicate the shorter term objectives to be met in response to the guidance they have received; the actions to be taken that will lead to these objectives; and the application of resources required to take these actions. Subsequent review of these plans by each Department Head will assure that they are consistent with and contribute to the Department's objectives and, in turn, to the Center's overall goals.

CENTER GOALS, ISSUES, AND OBJECTIVES

The Center is not simply the aggregate of

a number of Departments acting independently of one another; rather, it is a collective whole, with all of the Departments sharing many common interests, responsibilities, and problems. While the strategic--tactical--operational planning approach is seen as effective in focusing the efforts of individual organizational units, there is another dimension to our long-term corporate operations: Center-wide goals, management issues, and objectives.

These are not within the responsibility of any single segment of the Center; they are a shared responsibility of all of the Center's senior managers. They have been identified and articulated largely as a result of the strategic planning efforts to date, and are briefly described in the following sections. They are presented in somewhat abbreviated form, since they have been articulated and discussed more thoroughly in documentation associated with the Center's strategic planning process.

Center Goals

Many of the Center's long-term goals may be inferred directly from the previous discussion. We will continually seek to

- Maintain NSWC as a multi-mission, multi-warfare, full-spectrum RDT&E Center
- Achieve a work balance of 20%/60%/20% across the technology base/system development/in-service support spectrum
- Upgrade our facilities and obtain new facilities where needed
- Employ high-quality scientists,

engineers, technicians, and support personnel in support of our mission

- Limit contracting to no more than 50% of our budget

Management Issues

The more significant management issues facing the Center, and currently being addressed, include

- Software Intensive Systems: The impact of the Center's growing responsibilities for software maintenance and in-service engineering needs to be assessed, managed, and controlled.

- Business Information Systems: The Center's business processes must take maximum advantage of automation, and the management information requirements of Center managers at all levels need to be met more effectively and efficiently.

- Base Operations: The potential impacts on the Center's technical operations of substantially increased tenant activities and associated military population need to be anticipated, planned for, and managed.

- Contracting: The extent to which the administration and monitoring of contracts constitute a drain on our scientific and engineering personnel should be more clearly identified and understood, and a Center policy adopted to alleviate problems in this area.

- Wallops Island: In light of the geographical and environmental advantages of the Wallops Island facility, its full potential as an asset to be utilized in support of programs throughout the Center needs to be achieved.

Near-Term NSWC Objectives

A number of objectives that the Center seeks to achieve in the relatively near term have also been identified and are summarized in three broad categories below.

Strategic Management

- Initiate implementation of strategic planning efforts through tactical planning
- Initiate program shifts to orient work balance toward systems and components which support surface warfare
- Fully implement self-evaluation of Center programs--project planning and reporting, design/performance reviews

Internal Administration

- Base Operations--determine the administrative actions and organizational changes necessary to accommodate growing tenant impact
- Decision Making Process--assess the effectiveness of the resource boards and develop indices of the Center's operations
- Business Information Systems--initiate a concerted effort to meet Center managers' information needs, including implementation of appropriate organizational changes required to meet these needs
- Contracting--determine the impact of the Center's contracting workload on in-house technical capabilities

- General Business Objectives--operate as effectively as possible within resource constraints

External Operations

- Wallops Island--develop plans to assure proper utilization by all technical departments
- Software Intensive Systems--continue to address issues of program transition, contracting, work balance
- Working relationships with other technical field activities (other RDT&E Centers, SysCom shore activities)--clarify mutual responsibilities
- Impending NIF changes--prepare for the impact on internal operations, customers, Center workload

Resource Boards

A common thread running through these Center-wide issues and objectives is that they all deal with some aspect of the acquisition, allocation, and utilization of resources. There are fundamentally three categories of resources available to the Center in carrying out its operations--dollars, facilities, and people--and the Center has recently instituted internal management procedures to address each of these areas.

For each area, a "resource board" has been established--specifically, the Finance and Business Systems Board; the Facilities, Logistics, and Equipment Board; and the Human Resources Board. Each is made up of a selected number of senior executives and representatives of other management levels, and each is charged with bringing a corporate perspective to the Center-wide management of resources within its respective area.

The resource boards establish or

recommend Center policies, strategies, and objectives for resource management; provide guidance to the Departments in the allocation of resources; and review progress in the utilization of resources in meeting Center objectives.

Regardless of the importance attached to the use of resources, the results that are to be achieved with these resources are even more important. The quality of these results is our overriding concern, and a fourth "resource board" has been established to periodically review and assess the progress of selected individual Center technical projects and programs.

Through their operations these boards play a very important role in the effective implementation of the Center's plans at all levels by helping to assure that these individual plans can be carried out in support of the Center's overall goals.

THE ROLE OF THE INDIVIDUAL EMPLOYEE

No discussion of the Naval Surface Warfare Center would be complete if it did not address the most important part of the Center: our people. This document would have completely missed the mark if it left the reader with the impression that managers "give orders" and all others are expected simply to "obey"--that planners, planning, and plans are all-important and must be adhered to blindly once in place--or that goals, objectives, and future directions are arrived at through some form of divine revelation visited only upon individuals whose names appear at the nodes

of an organization chart.

It is true that leadership--informed, intelligent, decisive leadership--is a very important contributor to the effectiveness of any organization. But we are in the business of conducting research and development which, simply stated, is not an executive or management function. It is carried out by the Center's scientific and engineering staff, aided by a strong cadre of supporting personnel. It thrives in an operating environment conducive to innovation, a willingness to explore new approaches (and to accept and learn from failure), and a tolerance for ambiguity and uncertainty. It largely depends on the extent to which the people in the Center exhibit the personal characteristics of initiative, drive, motivation, integrity, dedication, flexibility, courage, competence, and imagination--and therefore, the extent to which these are the institutional characteristics of the Center itself.

These characteristics must be carefully nurtured and sustained. They cannot be planned for, scheduled, or controlled--and it is not the intent of the Center's planning efforts to do so. We have set forth our intended future directions to guide and focus our technical efforts, not to limit or constrain them. We must concentrate our capabilities where they will be of the greatest long-term value to the Navy, but this doesn't necessarily mean we can predict with certainty our future activities.

One of this Center's most important capabilities has been, and should continue to be, our ability to rapidly and effectively learn from experience and to adapt to meet new

needs as they evolve. In the final analysis, this capability rests with our people--who are both encouraged and expected to look beyond their immediate responsibilities, to recognize opportunities for strengthening their contributions to the Center and the Navy, and to take full advantage of these opportunities.

All employees are expected to meet their responsibilities to the best of their abilities, to improve their job skills, and to maintain high professional and ethical standards. And all employees have an obligation to help in improving the overall workforce environment and to provide constructive feedback to management.

A RETROSPECTIVE LOOK AT THE FUTURE

The United States Navy has a long and proud tradition of service to our Nation, dating from the founding of the Republic. Throughout its history, the Navy has both supported and used the applications of emerging technology to improve its fighting capabilities--to move forward from sail to steam to nuclear propulsion; from long glass and signal flags to sophisticated electronic surveillance and communications systems; from round shot and boarding pikes to missiles capable of reaching unseen targets at ranges of hundreds and even thousands of miles.

Scientists and sailors, working together, made this happen. The history of the Naval Service and the history of science and engineering in the Nineteenth and Twentieth

Centuries are intertwined, as evidenced by the work of such outstanding individuals as Fulton, Colt, Dahlgren, Taylor, Michelson, Edison, Millikan, Goddard, Norden, Atanasoff--all of whom, along with many more, contributed their special talents to help meet the technical needs of the Navy.

NSWC, through its predecessors, has been a crucial part of this history for most of this century. In 1918, the Navy relocated the proof testing of guns and ammunition from Maryland to the shores of the Potomac River in Virginia. At about the same time, a unit of the Washington Navy Yard was assigned the job of designing and testing mines. These two unrelated events marked the beginnings of what eventually became two full-scale research and development organizations--the Naval Weapons Laboratory at Dahlgren, Virginia and the Naval Ordnance Laboratory at White Oak, Maryland.

Each of these two Laboratories--with its distinct capabilities and skills--had a distinguished history in its own right, marked by such notable contributions as involvement in the Manhattan Project, the early development and use of large-scale computers, explosives research, design of the SUBROC weapon, development of mines and torpedoes, pioneering contributions to Fleet electromagnetic warfare capabilities, innovative warhead design, weapon fuzing, a major role in the Fleet Ballistic Missile program, advanced hypersonic R&D, and enhancing the Navy's use of satellites since the beginning of the space age. When the two Laboratories were merged in 1974, they

brought together into one organization a unique set of talents and resources to form the present-day Naval Surface Warfare Center.

Today, whenever and wherever the ships of our Navy put to sea, they must be prepared to "go in harm's way." It is our job to help them stay technologically prepared, now and in the future. We at NSWC are justifiably proud of our past, but cannot simply rest on our laurels. We look forward to the challenges and opportunities facing us: these are the blank pages on which tomorrow's history will be written. Every one of our employees will have a role in writing that history!

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DISTRIBUTION

Two printed copies of this guidance document have been sent to each Department, Division, and Branch office at NSWC.

In addition, the document is directly available to all users of the Center's office automation system. It is located in the "documents" folder in the public area of PEP, and may be accessed by the short title "NSWCFuture".